CLAIM AMENDMENTS

Claims 1-43 (Cancelled)

Claim 44. (previously presented) A multi-stage modular optical switch comprising:

a first group (L, 2L-1) switching modules, the first group having M members and configured to support non-blocking reciprocal traffic at LXM ports;

a second group of M-way reciprocal switching modules, the second group having 2L-1 members with each configured to support non-blocking reciprocal traffic at M ports with each member of the second group having less than [N*(N-1)/2] switchable deflectors.

Claim 45. (previously presented) A switch as in claim 44 which includes signal interconnections between members of the first group and members of the second group.

Claim 46. (previously presented) A switch as in claim 45 where each of 2L-1 ports of each member of the first group is coupled to a port of a different one of the 2L-1 members of the second group.

Claim 47. (previously presented) A switch as in claim 44 which includes Mx(2L-1) interconnections between the groups.

Claim 48. (previously presented) A switch as in claim 46 which includes Mx(2L-1) interconnections between the groups.

Claim 49. (previously presented) A switch as in claim 47 where each member of the second group incorporates a plurality of transmission paths which have substantially a common length.

Claim 50. (previously presented) A switch as in claim 47 where each member of the second group incorporates as switchable deflecting elements one of switchable reflectors, optical bubbles or holographic gratings.

Claim 51. (previously presented) A switch as in claim 50 where the deflecting elements are arranged on transmission paths having a substantial common predetermined length.

Claim 52. (previously presented) A switch as in claim 47 where at least some members of the second group include a loop-back element.

Claim 53. (previously presented) A method of implementing signal switching comprising:

coupling any one of L input signals in M groups, to any one of (2L-1) outputs in M groups;

transferring each of the (2L-1) outputs to one of the M inputs in (2L-1) groups;

switching each of the M inputs, as an intermediate output, to any one of the other M-1 inputs to implement non-blocking reciprocal traffic among at least M bidirectional paths;

coupling each of the intermediate outputs to a different group of (2L-1) outputs; and

providing the coupled intermediate outputs to at least some of the L input signals in M groups.

54. (previously presented) A method as in claim 53 where at least M bi-directional paths have a substantially common length.

55. (previously presented) A method as in claim 53 including altering at least M bi-directional paths at [M*(M-1)/2]-1 sites.

56. (previously presented) A method as in claim 53 including providing bi-directional coupling of L input signals with (2L-1) outputs for at least some of the M groups.

57. (previously presented) A method as in claim 56 including switching signals among the M groups with substantially a common path length.

58. (previously presented) A modular switch for non-blocking reciprocal traffic comprising:

a first plurality of substantially identical bi-directional switching modules, the ports of each member of the plurality support reciprocal traffic;

a second plurality of substantially identical reciprocal traffic switching modules, each member of the second plurality has M inputs and on the order of [M*(M-1)/2] switchable path selecting elements and each member of the second plurality is coupled to the members of the first plurality to support non-blocking reciprocal traffic relative to the ports of the first plurality.

59. (previously presented) A modular switch as in claim 58 where the members of the second plurality exhibit substantially a common path length.

60. (previously presented) A method of switching communications signals comprising:

injecting up to N communications signals into a region;

deflecting selected pairs of injected signals at up to (N*(N-1)/2)-1 locations so that each of the members of each pair of injected signals becomes an output associated with the other injected signal of the respective pair

61. (previously presented) A method as in claim 60 which includes looping selected of the injected signals back on themselves to form a pair of substantially identical signals, one being the injected signal, the other being an output signal.

62. (previously presented) A method as in claim 60 which includes deflecting first and second pairs of signals so that the signals of each pair traverse a common path length.

63. (previously presented) A method as in claim 60 which includes arranging first and second pairs of signals so that the signals of each pair traverse a common path length.

64. (new) A method of switching communications signals comprising:

injecting up to a selected number of communications signals into a region;

deflecting selected pairs of injected signals at up to a selected number of locations so that each of the members of each pair of injected signals becomes an output associated with the other injected signal of the respective pair.

65. (new) A method as in claim 64 which includes looping selected of the injected signals back on themselves to form a pair of substantially identical signals, one being the injected signal, the other being an output signal.

66. (new) A method as in claim 64 which includes deflecting first and second pairs of signals so that the signals of each pair traverse a common path length.

67. (new) A method as in claim 64 which includes arranging first and second pairs of signals so that the signals of each pair traverse a common path length.

68. (new) A method of implementing signal switching comprising:

selecting a number of inputs;

dividing the inputs into a first number of groups;

coupling any one of the inputs in any one of the groups to any one of a selected number of outputs, on the order of twice the number of inputs in any one of the groups;

selecting a second number of inputs;

selecting a second number of groups, the second number is on the order of twice the number of inputs in any one of the first groups;

coupling each of the outputs to one of the second inputs in the second groups to implement non-blocking reciprocal traffic among at least as many paths as the number of inputs.

69. (new) A method as in claim 68 where the paths are bi-directional and have a common length.

70. (new) A method as in claim 68 where the second number of inputs corresponds to the first number of groups.

71. (new) A modular switch for non-blocking reciprocal traffic comprising:

a plurality of substantially identical bi-directional switching modules, each of the modules has a plurality of bi-directional ports;

a plurality of substantially identical reciprocal traffic switching modules, each member of the plurality of reciprocal traffic modules has a selected number of inputs and has switchable path selecting elements on the order of one half the selected number multiplied by itself;

each member of the plurality of reciprocal traffic modules is coupled to the members of the plurality of bi-directional switching modules to support non-blocking reciprocal traffic relative to the ports.